



1. INTENDED USE

Designed to have speed-critical detection with no false alarms. The Viking VSF301 Video Flame Detector is an explosion-proof visual flame detector that delivers through its FM and SIL 2 certified flame detection algorithms and on-board digital signal processing. It is the safest and most advanced flame detector on the market and is proven to perform in the harshest of environments anywhere around the world.



2. APPROVALS AND CERTIFICATIONS



FM Approved
Class 1 Div 1, Groups B, C, D
Class 1 Zone 1 AEx/Ex db IIC T4
Ambient -58°F to +185°F
(-50°C to +85°C)



Ingress NEMA type 4X / IP66
IEC 61508 SIL 2 Capable



ATEX EX II 2 G Ex db IIC T4
IECEX Ex db IIC T4
Ambient -76°F to +185°F
(-60°C to +85°C)



Performance approvals
FM2809
EN 54-10



California Department of
Forestry & Fire Protection

- Listing number: 7210-0533:05
- Category 7210 - Flame Detector



3. TECHNICAL SPECIFICATIONS & FEATURES

3.1 Specifications

Parameters	Value
Operating temperature	-76 °F to +185°F (-60°C to +85°C)
Storage temperature	-76 °F to +185°F (-60°C to +85°C)
Humidity	0 to 95% RH non-condensing
Operating voltage	24 Vdc Nominal (range is 18 to 30 Vdc)
Outputs	Relay contacts (SPST 2A at 30Vdc) - alarm and fault. 0-20mA, HART®; live color video—PAL or NTSC
Power consumption	6 W minimum (without heater); 15 W at 3 OVdc with heater on maximum
Field of view	90° horizontal by 65° vertical
Speed of response	less than 7 seconds (typical)
Dimensions	4" (100 mm) diameter x 8" (200 mm) length
Materials	Copper-free aluminum or 316 stainless steel
Entry size	3/4" NPT or M25, single or dual
Weight	Aluminum 5.5 lbs (2.5 Kg); stainless steel 13.2 (6 Kg)

3.2 Flame Sensitivity Specifications

Flame Sensitivity		
Fuel	Fire Size	Distance
n-Heptane pan fire	1' x 1' pan	144' (44 m)
n-Heptane direct sunlight	1' x 1' pan	144' (44 m)
n-Heptane modulated sunlight	1' x 1' pan	144' (44 m)
n-Heptane modulated black body	1' x 1' pan	144' (44 m)
n-Heptane arc welding	1' x 1' pan	144' (44 m)
n-Heptane 1000 W lamp	1' x 1' pan	144' (44 m)
Gasoline	1' x 1' pan	144' (44 m)
JP4	2' x 2' pan	200' (61 m)
Tri-ethylene glycol	1' x 1' pan	32' (10 m)
Diesel	1' x 1' pan	130' (40 m)
Crude oil (heavy fuel)	20" x 20" pan	130' (40 m)
Methane jet fire	36" plume	100' (30 m)
Ethanol	1' x 1' pan	85' (25 m)
Silane	24" plume	42' (13 m)


TECHNICAL DATA SHEET
VSF301 Video Flame Detector

Flame Sensitivity		
Fuel	Fire Size	Distance
n-Heptane pan fire	1' x 1' pan	200' (60 m)
n-Heptane direct sunlight	1' x 1' pan	200' (60 m)
n-Heptane modulated sunlight	1' x 1' pan	200' (60 m)
n-Heptane modulated black body	1' x 1' pan	200' (60 m)
n-Heptane arc welding	1' x 1' pan	200' (60 m)
n-Heptane 1000 W lamp	1' x 1' pan	200' (60 m)
Ethanol	1' x 1' pan	100' (30 m)
Methane jet fire	36" plume	86' (26 m)
Gasoline	1' x 1' pan	200' (60 m)
JP4	2' x 2' pan	300' (90 m)
Tri-ethylene glycol	1' x 1' pan	50' (15 m)
Diesel	1' x 1' pan	165' (50 m)
Crude oil (heavy fuel)	20" x 20" pan	165' (50 m)
Silane	24" plume	56' (17 m)

3.3 Features

- Intelligent visual flame detection (iVFD) principle ensures maximum false alarm immunity and eliminates sensitivity loss in the presence of modulated sunlight and black body heat.
- Operates with or without color video output.
- On-board recording of pre- and post-fire alarms.
- Continuous optical test, which verifies operation and improves device up-time.
- Microprocessor controlled heated optics, which maintains operation in harsh weather conditions (snow, ice, condensation).
- International hazardous area approvals, such as FM, ATEX, IEC Ex.
- Certified performance testing (through FM 2908 and EN 54-10) to multiple fuels.
- Specially aware single sensitivity detection.
- External testing with a long-range flame simulator, which minimizes the need for scaffolding.
- Easy integration using industry standard outputs, such as alarm and fault relays, as well as 0-20mA and HART[®]Certified SIL 2 capable.



4. ORDERING INFORMATION

Detector

Part Number*	Description
24368	3/4" NPT, dual entry
24369	M25, dual entry
24370	3/4" NPT, dual entry, stainless steel
24371	M25, dual entry, stainless steel
24596	3/4" NPT, single entry
24593	3/4" NPT, single entry, stainless steel

*Additional cable entry variants are available upon request.

Accessories

Part Number	Description
24376	VSF3008 ITEST
24377	Vertical to horizontal mounting adapter
24378	Standard bracket 316 stainless steel (spare only)
24379	Marine bracket 316 stainless steel (not fitted)
24380	Detector sealing kit - metric
24382	Flame simulator charger (spare)
24383	Sunshield
24384	2" pole mount bracket
24385	3" pole mount bracket
24386	4" pole mount bracket
24387	VTP4 twisted pair to coaxial converter
24388	BNC converter
24389	VIM4 quad channel video isolator
24591	USB to RS485 converter
24592	USB HART modem

5. CONTACT

The sprinkler and accessories are available through Viking distributors only. Contact your local Viking sales office which can be found on our website:

The Viking Corporation
 5150 Beltway SE
 Caledonia, MI 49316
 Tel.: (800) 968-9501
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